

Dementia in Eastern Mediterranean Counties: A Systematic Review

Abstract

Globally, there is an increase in the older population, whose lives are affected by local cultural norms. In Eastern Mediterranean countries (EM), dementia is conventionally hidden from view with few dedicated services or recognition for diagnosis. The aim of this systematic review is to explore the limited literature on dementia and cognitive impairment among older people in EM countries to present an evaluation of current practices and to consolidate knowledge for future planning. A systematic search of scientific databases was conducted February 2017. Thirty-three studies were identified for inclusion in the review, and four themes were apparent. Firstly, prevalence, comorbidity, and gender: In EM countries, many studies identify that the prevalence of dementia is high. As is the case elsewhere, many older adults in EM countries have at least one coexisting long-term condition, and some experience low life-satisfaction. Secondly, culture: In EM countries, the older adult is highly respected, and placement outside of the family home is considered an abandonment of family duty. The term dementia carries stigma, and it is widely believed that dementia is caused by 'fate'. Thirdly, recognition and tools: There are a lack of verified assessment instruments to assess for dementia. Despite concerns about the cultural appropriateness of the Mini Mental State Exam, particularly for people who have low literacy levels, and low literacy being the norm in EM countries, the Mini-Mental State Examination is the main assessment instrument. Translation and transition of non-Arabic assessment instruments and tools with psychometric properties presents a challenge for clinicians. Finally, workforce issues: health care workers lack knowledge about dementia, as dementia care is a relatively recent addition to the nursing and medical syllabi. While there were some inconsistencies in the papers published, many of the articles call for increasing educational programmes and health and social care policies to promote improved and practical gerontological nursing and medicine. Healthcare professionals need education about sociocultural, religious, and language needs to deliver improved culturally sensitive care.

Keywords

Dementia, Cognitive Impairment, Eastern Mediterranean, culture, Alzheimer's Disease, healthcare

Introduction

This paper aims to explore what is currently known about dementia and cognitive impairment among the older population in Eastern Mediterranean (EM) countries, to identify current practices and identify needs for future development. It is estimated that in 2016, 47 million people around the world live with dementia; 2.3 million of whom live in EM countries (Schillings & Wahnsiedler, 2016). By 2030, this number is expected to increase to 4.4 million people living with dementia in EM countries (Schillings & Wahnsiedler, 2016). The

increase in the older population in EM is consistent with growth globally (World Health Organisation [WHO], 2006).

The EM consists of 22 countries: Afghanistan, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kingdom of Saudi Arabia (KSA), Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Palestine, Qatar, Somalia, Sudan, Syria, Tunisia, United Arab Emirates (UAE), and Yemen, grouped for representation with bodies such as the World Health Organisation. The EM has 670 million people, with populations ranging from 196.7 million in Pakistan and 95.2 million in Egypt to 2.6 million in Qatar (Cent, 2015; Cipriani & Borin, 2015; Ministry of Health [MOH], 2016; Okasha & Boutros, 2010; Worldometers, 2016). Global life expectancy is 71 years, and the average life expectancy in EM countries is 68.8 years. Life expectancy however varies in the EM from 78.2 years in Qatar; to 77.9 in Iran; 77.1 in UAE; 74.5 in KSA, Jordan, Kuwait, Lebanon, Morocco; 70.9 in Egypt; and at its lowest in Afghanistan at 60.5 years (MOH, 2016; WHO, 2015, 2017). This compares with life expectancy of 76 years for a boy born in a high-income nation in 2012 (WHO, 2015). With an increase in life expectancy and in the older population, dementia has become one of the most prevalent public health issues.

Method

In February 2017, a systematic search was conducted in scientific databases, including DelphiS, CINAHL, MEDLINE, OVID, ProQuest, Embase and PsychINFO, using the following keywords: *older adult*, *old**, *elder**, *geriatric*, and *senior*, in combination with *dementia*, *Alzheimer's**, *cognitive impairment*, *cognitive decline*, *memory loss*, *Lewy Body*, *Parkinson**, *Vascular dementia*. These terms were then combined with the names of relevant 22 EM countries i.e. *Saudi, Arabia**, *Egypt*, *Emirate*, *Kuwait*, *Middle East**, or *Eastern Mediterranean* and studies in both English and Arabic (Table 1). In total, 1,740 articles were found that were then limited to peer-reviewed articles published from 2007-2017, leaving $n=687$ articles. Duplicate and irrelevant articles were excluded based on title and abstract, leaving $n=99$ articles. Further research conducted using Google Scholar added $n=11$ articles. However, considering the search limitations in the current study, finding recent data from the EM region from the past few years was challenging. Hence, searching for articles from the last 10 years proved more worthwhile. English and Arabic articles are the most accessible and most frequently used languages within the EM region. A limitation to peer-reviewed articles with the full-text available was applied as well to find best available evidence. The exclusion and inclusion criteria are outlined in Table 2.

Main term	Older adult	Dementia	Arab
Alternate terms	"old*", "older adult" "elder*", "geriatric", or "senior"	"dementia", "Alzheimer*", "cognitive impairment", "cognitive decline", "memory loss", "Lewy Body", "Parkinson*", or "Vascular dementia"	"Arab*", "middle east", "Eastern-Mediterranean", "Afghanistan", "Bahrain", "Djibouti", "Egypt", "Emirate", "Iran", "Iraq", "Jordan", "Kuwait", "Lebanon", "Libya", "Morocco", "Oman", "Pakistan", "Palestine", "Qatar", "Saudi", "Somalia", "Sudan", "Syria", "Tunisia", or "Yemen"

Table 1 Search terms and alternative terms/synonyms

	Limitation	Reason
Years	2007- 2017	Finding recent data in EM region for the past few years is challenging, hence, searching articles of the past decade will be worthwhile
Language	English and Arabic	English and Arabic articles are more accessible and understandable, as well as the most frequently used within the EM region
Other	Peer-reviewed Available texts	Looking at evidence based journals with best available evidence

Table 2 Inclusion criteria to pertain search

Thirty-three articles were found using the search terms and search strategy (Figure 1, Table 3). The quality of the 33 studies was checked using the Joanna Briggs Institute (JBI) checklist, the Critical Appraisal Skills Programme (CASP) and the Mixed Method Appraisal Tool. Twenty-seven studies were assessed to be of ‘good quality’, and six were ‘average’ (Aromataris, Fernandez, Godfrey, Holly, Kahlil, & Tungpunkom, 2015; CASP, 2017a, 2017b, 2017c; JBI, 2016; Lockwood, Munn & Porritt 2015; Pluye et al., 2011). However, studies having an average quality were included in this review due to the limited number of studies available and due to their valuable contributions to the field.

There were eleven cross-sectional studies; four of these estimated the prevalence of Alzheimer’s disease, Parkinson’s disorder and mild cognitive impairment, and discussed the risks associated with sociodemographic factors; $n=944$ Palestinian, in addition to $n=200$ and $n=44$ Egyptian from two studies, and, $n=221$ Jordanian (Afgin et al., 2012; Esmayel, Eldarawy, Hassan, Mahmoud, & Mohamed, 2013; Khedr et al., 2015; Almomani, Almomani, Alghadir, Alharethy, & Gabr, 2016). A cross-sectional study in the Netherlands (Parlevliet et al., 2016) determined the prevalence of dementia and mild cognitive impairment across cultures, based on Arab participants ($n=1625$), and assessed the validity of the Cross-Cultural Dementia Screening tool (Goudsmit, Uysal-Bozkir, Parlevliet, van Campen, de Rooij & Schmand, 2016). Two cross-sectional studies that used hospital-based data to assess morbidities and risk factors among older people were included in the review; $n=880$ Saudis and $n=5,399$ Arab Americans (Almodeer, Hassanien & Jabloun, 2013; Dallo, Ruterbusch, Kirma, Schwartz & Fakhouri, 2016). In Saudi Arabia, Alaama (2016) assessed 70 medical students’ knowledge of geriatrics, and Yaghmour, Gholizadeh and Alsenany (2016) explored 265 nurses’ knowledge of dementia. Alsenany and Alsaif (2012) conducted a comparison study that explored the intentions of Saudi ($n=566$) and British ($n=718$) nursing students regarding working with older people.

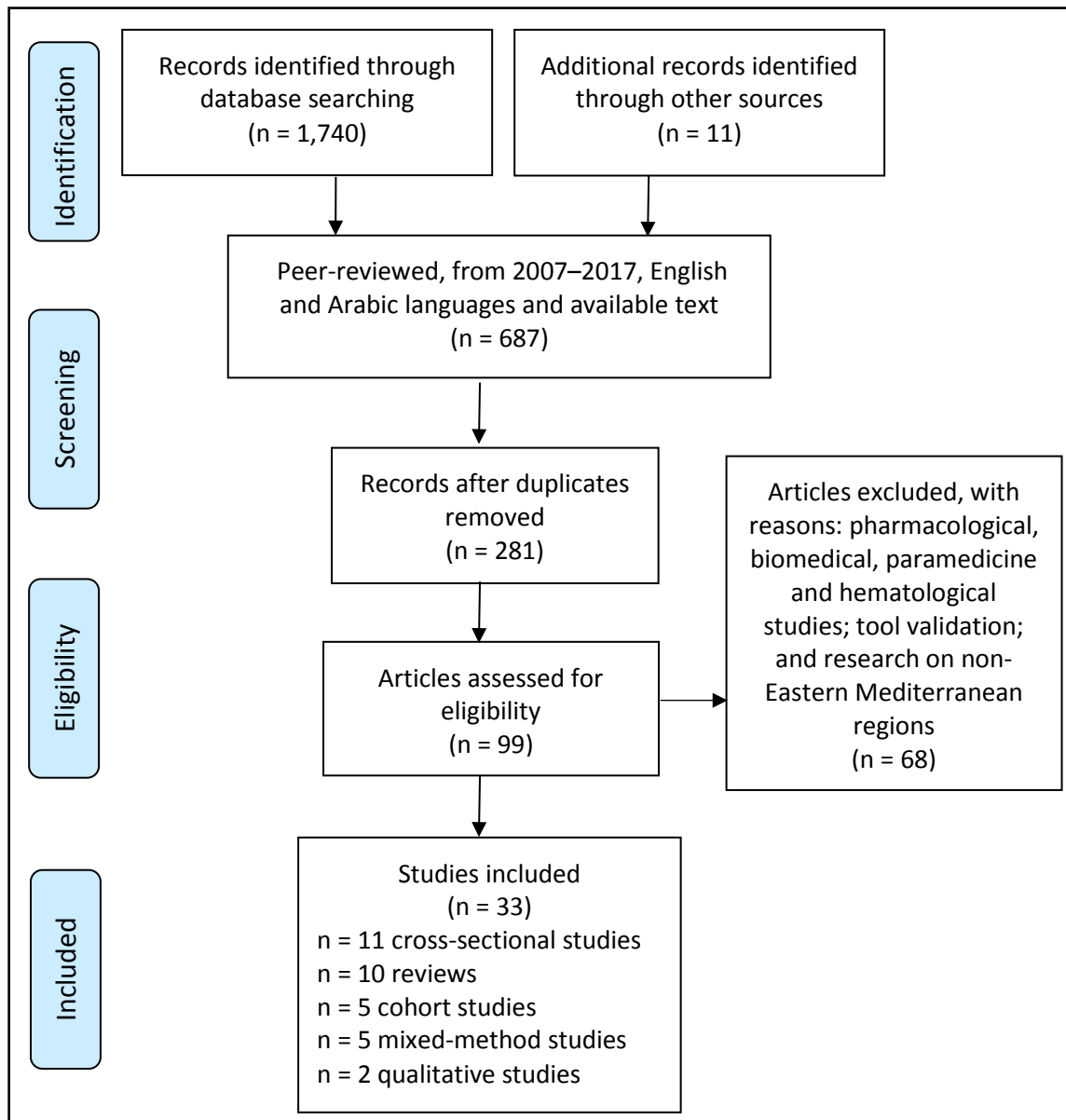


Figure 1 Study PRISMA chart

Among the articles there were 10 reviews, of which two were systematic reviews. Okasha and Boutros (2010) reviewed influential papers about psychiatry from Arab countries. Halabi and Zafar (2010) explored care of the elderly in UAE, while Alabed, Davidson and Hickman, (2014) systematically reviewed eight studies that explored the healthcare needs of immigrant Arab older people in Australia. Furthermore, Cipriani and Borin (2014) explored the phenomena of dementia across cultures, and Abyad (2015) in Lebanon focussed on the EM population. Sayegh, Kellough, Otilingam, and Poon (2013) discussed the issues associated with dementia and mood and anxiety disorders among older Arab Americans. Werner, Friedland and Inzelberg (2015) studied the prevalence of Alzheimer's disease with respect to ethnic differences. Regarding prevalence of dementia, two reviews intended to explore the systematic approaches used in Iran and Egypt (Sharifi et al., 2014; Elshahidi, Elhadidi, Sharaq, Mostafa & Elzhery, 2017). Meanwhile Uysal-Bozkir,

Parlevliet and Rooij (2013) assessed the quality of cross-cultural adaptation of psychometric tools including assessment of cognition.

Five cohort studies focused on the prevalence of neurocognitive disorders, including dementia, and they explored the relation between these disorders and risk factors and morbidities; $n=33,285$ Egyptians, $n=982$ Palestinians, $n=53$ and $n=313$ Saudis in different studies (Eltallawy et al., 2013a, 2013b; Spalter, Brodsky & Shnoor, 2014; Amr, Elgilany, Sallam, & Shams, 2014; Alhawiti, Alfaer, Altuwaylie, & Elbadawi, 2016). Two mixed method studies out of these five explored attitudes of healthcare workers and caretakers towards older people with dementia; $n=132$ Saudi nursing faculty members and $n=20$ Palestinian caretakers (Alsenany & AlSaif, 2014; Bentwich, Dickman & Oberman, 2016). Meanwhile, Ayalon, Heinik and Litwin (2010) explored the cross-cultural differences of Palestinian older adults ($n=2,492$). In 2013, Khan et al. in Saudi Arabia and Boulos, Salameh and Barberger-Gateau in Lebanon used the mixed method study design to assess and evaluate the nutritional status of older people with dementia ($n=63$, $n=1,200$, respectively). Finally, two qualitative studies from UAE were included which examined the effects of psychiatric and physical disorders on life satisfaction among 610 older people (Ghubach, Elrufaie, Zoubaidi, Sabri, Yousif & Moselhy, 2010). Furthermore, another qualitative study was included that was conducted with 121 Arab immigrants in Australia which examined the care provided by family members (Boughtwood, Adams, Shanley, Santalucia & Kyriazopoulos, 2011).

Findings

The data were analysed using NVivo 11. The 33 articles were read and coded for themes. Four themes were identified in the articles that are presented below. They are Prevalence, comorbidities and gender, Culture and religion, Recognition and assessment procedures, and Workforce issues.

Prevalence, comorbidity, and gender

In the EM region, awareness has increased of the prevalence of dementia in general and particularly Alzheimer's disease (Werner et al., 2015; Elshahidi et al., 2017). It is generally agreed that dementia, cognitive impairment and Alzheimer's disease are more common in the over 70s (Almomani et al., 2016; Elshahidi et al., 2017). However, there were a number of conflicting findings among the studies. In one study among Palestinian was found to demonstrate a higher prevalence of Alzheimer's Disease compared to western countries (Afgin et al., 2012). In contrast to this research, Ayalon et al. (2010) found lower levels of dementia among Palestinian. In an epidemiological study in Egypt, the prevalence of neurological disorders, including dementia, was higher than the global data (Eltallawy et al., 2013a, 2013b). The study included 8,183 people over the age of 40, and found that nearly 4% of participants above 60 years experienced dementia as a common neurological disorder (Eltallawy et al., 2013a). Additionally, a study conducted in North Egypt that included participants with Parkinson's disease found a high prevalence of Parkinson's disease, with 14.3% of participants exhibiting mild dementia (Khedr et al., 2015; Elshahidi et al., 2017), and the authors indicated that the prevalence of Parkinson's disease was higher than in other

cities worldwide (Eltallawy et al., 2013a; Elshahidi et al., 2017). A lack of health professionals and the absence of neurologists and gerontologists in the area meant that prevalence was under-reported, and increased pollution was identified as a contributing factor for higher prevalence (Eltallawy et al., 2013a; Elshahidi et al., 2017). Another two Egyptian studies suggested that the high prevalence of Parkinson's disease was possibly associated with air and water pollution and genetic susceptibility (Khedr et al., 2015; Elshahidi et al., 2017).

In the Netherlands, a cross-sectional study with immigrant younger adult participants ($n=2254$), of whom 31% were from the EM, showed there was a higher prevalence of mild cognitive impairment and dementia at three to four times greater than that among native Dutch. Higher prevalence of dementia among immigrants was associated with a higher incidence of vascular risk factors and psychiatric disorders, such as depression (Parlevliet et al., 2016). Similarly, a study found that Arab participants above 60 years demonstrated a prevalence of Alzheimer's disease four times greater than that of non-Arabs 75 years and older in the same area when tested with a similar diagnostic tool (Werner et al., 2015) attributed to genetic aspects and high illiteracy rates among Arabs. Overall, the EM community has a high prevalence of cognitive impairment (Cent, 2015; Werner et al., 2015).

Bentwich et al. (2016) in Palestine, found that the attitudes towards the dignity and autonomy of people with dementia differed significantly between Arabs and Russians. Arab people were brought up to respect the concepts of self-respect and independence, and thus demonstrated better grounds for person-centred care in a healthcare setting. However, Arab Americans and white Americans were compared in a study that showed no significant differences in their experiences of Alzheimer's disease (Dallo et al., 2016).

Older age is the main risk factor for dementia (Werner et al., 2015; Elshahidi et al., 2017). The prevalence of Alzheimer's disease and mild cognitive impairment is higher in women than in men; this is typically attributed to the fact that women live longer than men. However, this review found that a high rate of illiteracy was found among one study sample (Afgin et al., 2012) which influences assessment scoring. While illiteracy and education were strongly associated with the prevalence of Alzheimer's disease, higher levels of education among participants resulted in less impairment in tests (Ayalon et al., 2010; Werner et al., 2015) highlighting how tests are biased toward educated people. Yet, the authors indicated that the incidence of Alzheimer's disease in the Arab population is greater than that in a population with a similar literacy and educational profile (Eltallawy et al., 2013a, 2013b).

Women in this region are not seen in hospitals as frequently as men. Women are dependent on men, and they are thought to be more tolerant of psychological and physical pain than western women (Eltallawy et al., 2013a, 2013b; Amr et al., 2014; Dallo et al., 2016). A mixed-method, cross-sectional study conducted in a rural setting in Lebanon found significant differences between genders (Boulos et al., 2013). Women demonstrated significantly higher rates of illiteracy and lower income than men, risks associated with chronic illness, poor self-perceived health, fragility and functional disability. Additionally, women also showed higher prevalence levels than men of depressive symptoms and cognitive impairment (Eltallawy et al., 2013b; Boulos et al., 2013; Alhawiti et al., 2016).

A descriptive study conducted in KSA that reviewed the morbidity profile at hospitals found that co-existing conditions were common among the sample. While 16.5% of older

adults had two long term conditions, almost 22% experienced three and approximately 51% had four or more illnesses, leading to challenges for healthcare providers (Almodeer et al., 2013). These were hypertension, diabetes mellitus, stroke, dementia, osteoarthritis and Alzheimer's disease (Almodeer et al., 2013), and women were at higher risks of developing these conditions.

A population-based study conducted in KSA, found a 13% prevalence of dementia among older adult participants. The comorbidity rate was high at 52.8%, while the rates of hypertension, cardiac problems and diabetes were 45.3%, 30.2% and 23.7%, respectively (Amr et al., 2014). Furthermore, a retrospective study conducted in KSA of individuals with Alzheimer's disease, dementia with Lewy bodies, frontotemporal dementia and vascular dementia, acknowledged diabetes, hypertension and vascular disorders as risk factors. It was found that these illnesses maximise the risk of earlier-onset dementia (Alhawiti et al., 2016), and participants with multiple risk factors experience earlier-onset dementia (Amr et al., 2014; Alhawiti et al., 2016). In addition, Spalter et al. (2014) found that older adults who live with someone other than a spouse have a higher number of diseases and comorbidity factors.

In a cross-sectional study conducted in Egypt of older adults, depression and cognitive impairment were identified as the most common mental health problems among older participants, with a 30% prevalence of cognitive impairment among medical inpatients (Esmayel et al., 2013). In addition, the study detected a significant relationship between cognitive impairment and each depressive symptom (Esmayel et al., 2013). Likewise, in the UAE, among older adults who were interviewed, nearly 25% were diagnosed with depression, while almost 6% have anxiety, approximately 4% have hypochondriasis and 4% have organic brain syndrome with or without dementia (Ghubach et al., 2010). Additionally, decreased life satisfaction was markedly accompanied by anxiety, hypochondriacal disorders and organic brain syndrome. Nearly half of the study sample was dissatisfied with their lives, and among the older adults aged above 85, the level of life satisfaction was low, particularly among those participants who live alone or only with a spouse (Ghubach et al., 2010).

Culture and Religion

In the EM region, older adults are highly respected within the family (Halabi & Zafar, 2010; Amr et al., 2014; Spalter et al., 2014; Cipriani & Borin, 2015), and family members are discouraged from institutionalising older adults. In general, emphasis has been placed on respecting, valuing, honouring and caring for older family members driven by Islamic values (Alabed et al., 2014), that call for collective care toward vulnerable people. The oldest members of EM families represent wisdom, love, blessings and faith, and their opinions are usually predominant within the family as their opinions are held in the highest regard (Alabed et al., 2014; Alsenany & Alsaif, 2014; Cipriani & Borin, 2015) that is features in the religious instruction to care for elders. In addition, in the EM, older adults are treated with gratitude and respect, spoken to in soft voices and referred to as mother/father of the oldest son or as the father's name (Alsenany & Alsaif, 2014).

Disabled and vulnerable older adults are often cared for by family (Halabi & Zafar, 2010; Abyad, 2015), as it is important to value older adults' autonomy and dignity (Bentwich et al., 2016). Commonly, older adults in the EM region are primarily supported emotionally and socially by their families, often tribal, and few live alone (Halabi & Zafar, 2010; Sayegh

et al., 2013; Amr et al., 2014). If an older adult needs assistance, the family will typically hire a caregiver or a nurse at home; if the family cannot afford a caregiver or nurse, the older adult must remain in the care of his or her relatives (Halabi & Zafar, 2010; Alabed et al., 2014; Abyad, 2015). Introducing the older person to a care facility is considered abandonment of a family duty, which is unacceptable. Consequently, the EM region has few care facilities (Halabi & Zafar, 2010; Alsenany & Alsaif, 2012; Sayegh et al., 2013; Amr et al., 2014; Abyad, 2015).

In the EM, caring for a family member with a cognitive impairment can lead to anxiety, loss, fear, shame and ignominy of the family character. Regardless of global changes in terms of perceptions of mental illness, EM families remain influenced by restrictive social beliefs and cultural norms (Alabed et al., 2014). Even with limited facilities available within the region, people feel ashamed to receive care from a non-family member, and they believe that providing this care is the duty of relatives (Halabi & Zafar, 2010; Alsenany & Alsaif, 2012; Sayegh et al., 2013; Alabed et al., 2014; Amr et al., 2014).

As a person ages, levels of dependency and care complexity increase due to deteriorating autonomy and capabilities (Bentwich et al., 2016). Therefore, older adult care is provided in acute settings when medical evaluations and nursing care are needed. Older people do not seek preventive care but will access medical treatment if they have a recognisable illness, such as hypertension, diabetes or hyperlipidaemia, or help for behavioural problems associated with moderate and severe stages of cognitive impairment (Alsenany & Alsaif, 2012; Sayegh et al., 2013). Dementia is viewed as a normal part of ageing and people are less likely to seek medical support for memory issues (Okasha & Boutros, 2010; Esmayel et al., 2013; Sayegh et al., 2013). Fate, *Qadar* (God's will), evil spirits and the evil eye are cited as causes of illness by many in the EM (Okasha & Boutros, 2010; Eltallawy et al., 2013a; Sayegh et al., 2013; Alabed et al., 2014; Amr et al., 2014; Cipriani & Borin, 2015).

Sometimes, dementia is deemed pathological (Alsenany & Alsaif, 2012; Alaama, 2016). Cipriani & Borin (2015) claim that members of the EM community find it difficult to recognise dementia as an illness, and are reluctant to accept a diagnosis. It has been suggested that this stigma is due to the Arabic translation of the word *dementia* and its relation to mental illness. In Arabic, dementia is called *Kharaf*, meaning 'unravelling' or 'lost the mind', which leads to negative connotations in understanding the word (Cipriani & Borin, 2015). Researchers suggest that stigma and stereotyping can alter dementia care and treatment (Okasha & Boutros, 2010; Alabed et al., 2014; Alaama, 2016). Therefore, they recommend the term *mild cognitive impairment* be used for diagnoses other than Alzheimer's Disease (Afgin et al., 2012), as it is considered more acceptable (Okasha & Boutros, 2010; Afgin et al., 2012).

Palliative care decisions such as artificial feeding and resuscitation are viewed as purely medical decisions and are not openly discussed by families (Halabi & Zafar, 2010; Alabed et al., 2014). Most of the Arab population depend on traditional and religious healers (Okasha & Boutros, 2010; Alabed et al., 2014), which creates obstacles to pursuing medical care when it may be beneficial.

Recognition and assessment procedures

Recognition of dementia through assessment is instrumental in slowing disease progression by introducing treatments (Halabi & Zafar, 2010; Khan et al., 2013; Sayegh et al., 2013). A study found that older adults of the EM community were insufficiently studied (Sayegh et al., 2013), as language barriers and a lack of verified assessment instruments are considered obstacles in recognising and treating dementia. A problem was identified regarding translation and the use of culturally accepted terminology in the participants' native language to describe separately mental and physical distress (Sayegh et al., 2013). Dementia was determined at a late stage and cared for by general practitioners because of the low number of gerontologists (Halabi & Zafar, 2010; Alsenany & Alsaif, 2012; Esmayel et al., 2013). Most clinics and hospitals use the Mini-Mental State Examination (MMSE), despite many researchers having claimed that this tool is inaccurate in its scoring and that it is unsuitable for the EM's high number of illiterate older adults (Afgin et al., 2012). Hence, education level and low MMSE score are correlated. Conversely, a study recommended that almost all physicians should use the MMSE and Neuropsychiatric Inventory for the early detection of dementia and neurocognitive impairment (Amr et al., 2014).

EM countries face a challenge in evaluating psychometric properties because of a lack of high standard, cross-cultural, adapted assessment instruments. In most cases, use of the instruments is considered mediocre (Uysal-Bozkir et al., 2013). For example, EM immigrants form minority ethnicities in host countries, with limited knowledge regarding the host country's culture and language, and many are illiterate or they have low education levels. Hence, a cross-cultural dementia-screening test was used in the Netherlands as an appropriate, culturally sensitive neuropsychological instrument for dementia screening of a low-educated immigrant population (Goudsmit et al., 2016). It showed validity in predicting dementia among the 1,625 participants in the Netherlands who were illiterate, had lower education or were culturally different or who had language barriers. The test results showed lower MMSE scores, and the recommendation was to use this instrument in memory clinics along with a standard multidisciplinary diagnostic check-up (Goudsmit et al., 2016).

Workforce issues

Numerous studies aimed to investigate health professionals' knowledge and perceptions regarding geriatric peoples and some neurological problems, such as dementia, where several reviews reported a lack of personnel trained in dementia care (Halabi & Zafar, 2010; Alsenany & Alsaif, 2014; Alaama, 2016; Yaghmour et al., 2016). In the KSA, a study found a knowledge deficit among medical students, despite geriatric medicine being introduced into a residency programme in early 2016 (Alaama, 2016). The results of focus groups and nursing faculty member surveys suggested that more gerontological content and clinical experiences are needed in the nursing curriculum (Alsenany & Alsaif, 2014). Another study that investigated nurses' knowledge of dementia, depression and delirium found the need for increased dementia training, as insufficient dementia knowledge was detected among the study's participants (Yaghmour et al., 2016).

In a comparative quantitative study of Saudi and British nursing students, the students assumed that caring for older adults was similar to general nursing in an acute care setting (Alsenany & Alsaif, 2012). Saudi students found that establishing a nurse–client relationship

with older adults was easy because older adults in Eastern cultures are talkative and easy to communicate with (Alsenany & Alsaif, 2012). A qualitative study conducted in Australia found that EM families were the most sensitive amongst the study sample, with participants reporting many emotions, including grief and anxiety, associated with living with a person with dementia (Boughtwood et al., 2011). Regarding dementia-related behaviours, EM carers were the least concerned, whereas families were heavily involved in care (Boughtwood et al., 2011).

Discussion and recommendation for future studies

While there are cultural differences and variations in State care provision, EM countries share many values and cultural beliefs, and common history and heritage (Okasha & Boutros, 2010; Cipriani & Borin, 2015). Throughout the world, there are differences in the way that dementia is assessed and treated and how care is provided for people with dementia and their families. Cultural norms affect how older people are subjected to stigma, and whether there are obstacles related to getting help with diagnosis and treatment of dementia (Faisal, 2014). Dementia is conventionally overlooked in EM countries, as its diagnosis, treatment and management are not widely available to the general population (Okasha & Boutros, 2010; Almodeer et al., 2013; Schillings & Wahnsiedler, 2016). For example, in KSA, accessing such services must be done through private geriatric and memory clinics that are available only in major KSA cities, a fact that consequently affects health and wellbeing (Alsenany & Alsaif, 2012; Almodeer et al., 2013; Amr et al., 2014).

In the EM region, the term *dementia* first appeared in the literature in the early 1990s, and in the late 1990s, researchers first recognised dementia as a cause of death (Loza & Milad, 1990; Ozand, Gascon & Dhalla, 1990; Alrajeh et al., 1993; Alansary & Alrajeh, 1994; Ogunniyi, Daif, Alrajeh, Abduljabbar, Altahan, Albunyan & Shamina, 1998). The most prevalent dementias are Alzheimer's disease, vascular dementia and Parkinson's disease (Ogunniyi et al., 1998; Benamer et al., 2008). At present, there are few geriatric specialists available in the region and there are limited facilities specialising in geriatric care (Alrajeh et al., 1993; Ogunniyi et al., 1998; Benamer et al., 2008; Eltallawy et al., 2013; MOH, 2016).

While there has been recent increased focus on dementia in the EM region, significant steps are needed to provide people with dementia the care needed to improve their wellbeing. There is a lack of public awareness about and organised efforts to mobilise resources and deal with dementia and the provision of proper care. How older people view and experience their health has a significant impact on wellbeing (Benamer, de Silva, Siddiqui & Grosset, 2008; Qannam & Bello, 2016), which includes perceived health and especially psychological wellbeing, the impacts of long term conditions and functional impacts of impairments (Benamer et al., 2008; Almodeer et al., 2013; Amr, El-Gilany, Sallam & Shams, 2014; Ullah, Qamar, Qureshi & Niaz, 2016). To promote wellbeing, people need to be able to access the right support. Furthermore, in EM countries, the placement of older adults' relatives in care facilities is considered abandonment of a family duty (Andrews, 2014). Consequently, the care provided to people with dementia depends on the family carer's own knowledge and skills (Ghubach et al., 2010; Alabed et al., 2014), which varies.

Over the last few decades, several studies have called for epidemiological data, as data regarding dementia in the EM region are scarce. Studies indicated a lack of published data on dementia incidence and prevalence, as well as inconsistencies among published studies regarding dementia prevalence in the EM region (Sharifi et al., 2014). Older adults in the EM are insufficiently studied, and no baseline data are available for dementia (Afgin et al., 2012; Almodeer et al., 2013; Abyad, 2015; Werner et al., 2015; Alaama, 2016).

It is essential that healthcare professionals become aware of the health intentions shared by people from different sociocultural, religious and linguistic backgrounds to deliver culturally sensitive care (Boughtwood et al., 2011; Alsenany & Alsaif, 2012; Yaghmour et al., 2016). There is a need for research on caregivers of people with dementia in the EM that uses qualitative methods to explore ethnic and cultural values and norms related to caring for people with dementia (Alsenany & Alsaif, 2014; Werner et al., 2015). In addition, it has been suggested that EM communities should work towards reducing illiteracy, raising awareness and developing and evaluating the education of health professionals and the community (Werner et al., 2015; Yaghmour et al., 2016). Many highlighted the demand for shedding light on the nature of dementia and its treatment and for the mobilisation of decision-makers to prioritise dementia awareness among the EM population (Eltallawy et al., 2013a; Werner et al., 2015).

As this review has shown, understanding the EM culture is highly recommended to help improve dementia care and to enhance older adults' wellbeing (Sayegh et al., 2013; Alabed et al., 2014), and it is crucial to consider culture and social norms before introducing a new system or services (Almodeer et al., 2013). However, there is a high demand for the creation of an educational programme and policies to promote practical gerontological nursing and medicine (Alsenany & Alsaif, 2012; Sharifi et al., 2014; Alaama, 2016; Yaghmour et al., 2016).

Conclusion

Numerous studies indicated that dementia prevalence was higher amongst EM community, however, it is suggested that the prevalence was under-reported due to the absence of neurologists and gerontologists and lack of health professionals. While women show higher prevalence than men in experiencing dementia, however, high illiteracy with low-income was found among women in the region. Dementia among EM older adults was associated with at least two to four comorbidities such hypertension, cardiac problems and diabetes. That conversely accounted as risk factors for dementia along with stress, air and water pollution and genetic susceptibility. Additionally, older adult in EM community were cared by family members as introducing them to a care facility consider abandonment of a family duty. Restrictive social behaviours and cultural norms are influencing the care provided to people with dementia within the EM community. Therefore, people with dementia are not seeking for medical treatment from care facilities unless they have a recognisable physical illness. However, they are highly respected within the family and this is driven by Islamic values and believes. Nevertheless, dementia believed to be caused by fate, *Qadar* (God's will), evil spirits and evil eye and sometimes deemed to be pathological. Furthermore, Authors declared that there is an issue in recognising dementia across EM region, many referred that to the lack

of health professional personnel's awareness, as well as, inadequate use of psychometric properties. Language barriers, high illiteracy rates amongst older adults and lack of training are considered obstacles in providing adequate care for people with dementia and treatment.

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